

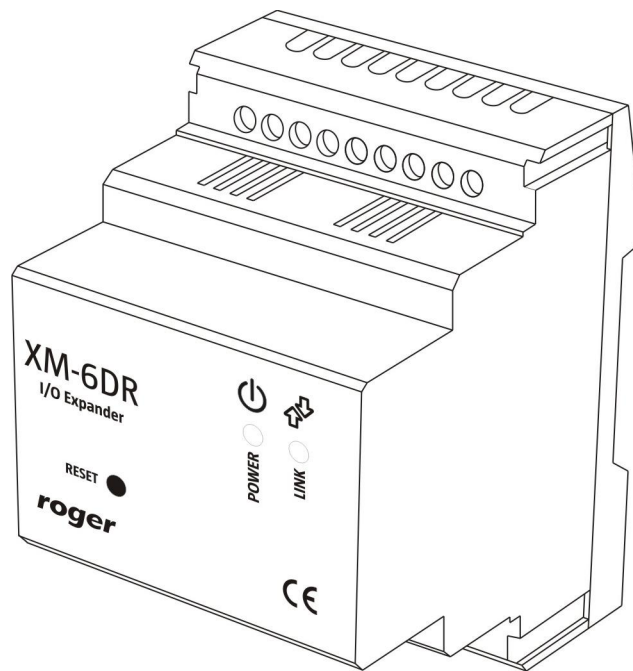
Roger Access Control System

User manual for XM-6DR I/O expander

Firmware version: 1.0.0

Hardware version: 1.0

Document version: Rev. A



1. DESCRIPTION AND SPECIFICATION

The XM-6DR is I/O expander with 6 relay outputs with single NO contact each. The module is addressable and it is dedicated to devices with RACS Clock&Data interface, namely RACS 4 controllers.

Currently the XM-6DR expander is available only in plastic enclosure for installation on DIN 35 mm rail.

| Table 1. Specification | |
|---|---|
| Parameter | Description |
| Supply voltage | Nominal 12 VDC, min/max range 10-15VDC |
| Current consumption | 20mA plus 40mA per each activated relay |
| Relay max load | 230VAC/10A (cos φ \geq 1) or also 30VDC/10A |
| Distance | Between controller and XM-6DR module: max 150m |
| Environmental class (according to EN 50131-1) | Class IV, -25C..+60C, relative humidity: 10 to 95% (no condensation), indoor conditions |
| Dimensions (H x W x D) | 62 x 85 x 73 mm; 3,5 units |
| Weight | 125g |
| Certificates | CE |

2. INSTALLATION

2.1 Terminals and connection diagram

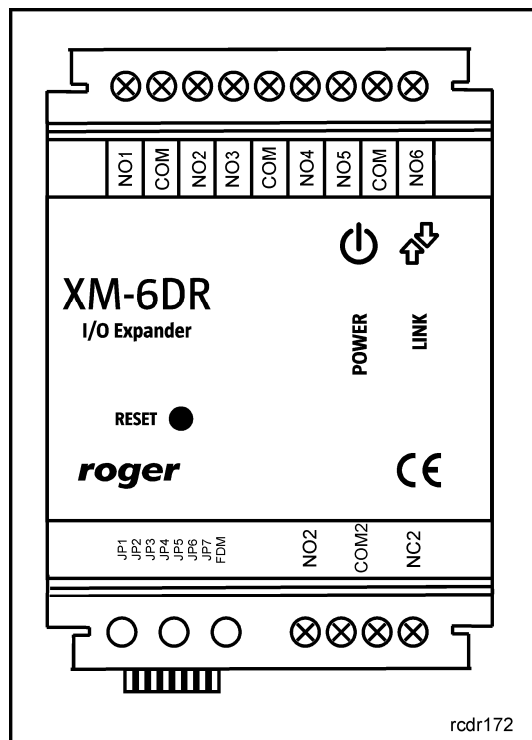


Fig. 1 XM-6DR I/O expander

| Table 2. XM-6DR terminals | |
|---------------------------|---|
| Terminal | Function |
| +12V | Positive power supply contact, 12V DC |
| GND | Ground |
| CLK | RACS Clock&Data comm. bus (CLK terminal) |
| DTA | RACS Clock&Data comm. bus (DTA terminal) |
| NO1 | Relay output for REL 1 (NO) |
| COM12 | Relay common terminal for REL 1 and REL 2 |
| NO2 | Relay output for REL 2 (NO) |
| NO3 | Relay output for REL 3 (NO) |
| COM34 | Relay common terminal for REL 3 and REL 4 |
| NO4 | Relay output for REL 4 (NO) |
| NO5 | Relay output for REL 5 (NO) |
| COM56 | Relay common terminal for REL 5 and REL 6 |
| NO6 | Relay output for REL 6 (NO) |

In the fig. 2 there is shown connection diagram for XM-6DR and PR402DR access controller. The communication is performed by means of RACS Clock&Data bus.

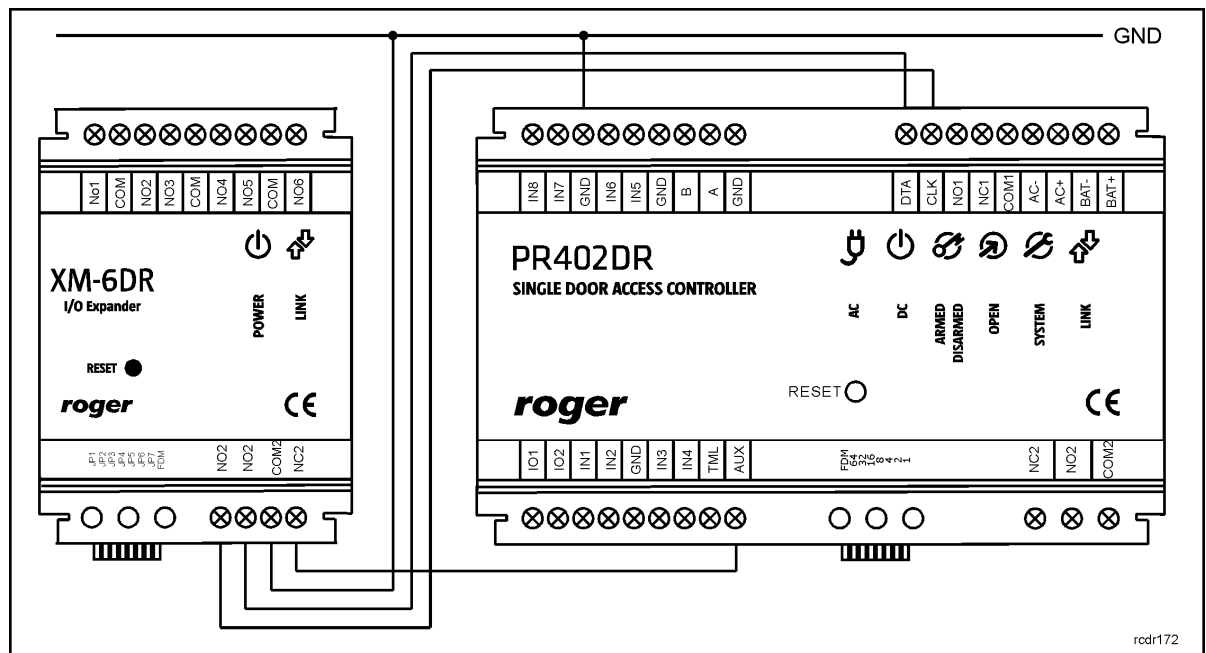


Fig. 2 Connection of XM-6DR expander with PR402DR controller

2.2 LED indicators

XM-6DR is equipped with two LED indicators i.e. LED Link and LED Power. LED Link signals the communication between expander and master device (controller) while LED Power can signal 4 states according to table. 3.

| Table 3. LED Power signalling | |
|--------------------------------------|---|
| State | Description |
| Steady light | Normal operation |
| Infrequently flashing light (2Hz) | No communication |
| Frequently flashing light (10Hz) | Too low supply voltage |
| Two short pulses every 2 seconds | Microcontroller memory failure. In such case it is necessary to upload firmware or repair the expander. |

2.3 Power supply

The XM-6DR requires 12VDC nominal power supply. If the voltage is below ~10V then the module stops its operation, deactivates all relays and signals the error by means of LED Power indicator (blinks 10 times per second).

Note: For proper communication by means of RACS Clock& Data bus it is required to connect all GND terminals of devices. Such requirement is satisfied if both devices are supplied from the same point. If devices are supplied from different power supply units then GND terminals of communicating devices must be connected by means of separate wire in order to equalize potentials. Any wire section can be applied.

2.4 Module mounting

XM-6DR module is not adapted to outdoor operation and it is installer responsibility to apply proper method and location for module installation.



Note: If any relay output of XM-6DR is used for switching 230VAC, then special precautions must be taken and all installation works must be performed by qualified and certified installer.

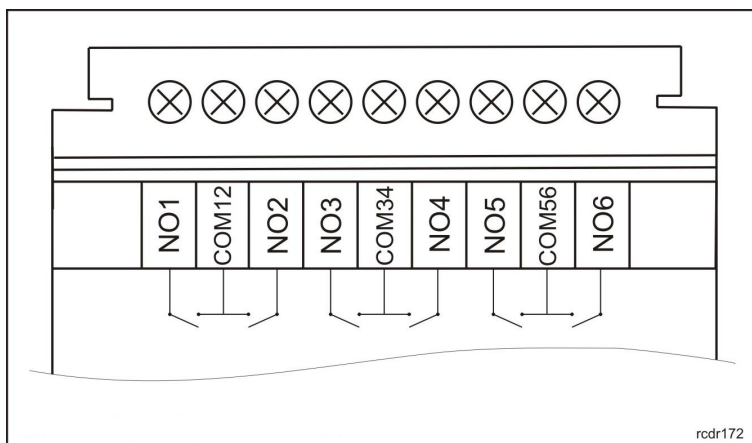


Fig. 3 XM-6DR relay terminals

Note: Single COM terminal is associated with two NO terminals (see fig. 3). Therefore it is necessary to ensure that sum of currents for particular pair of NO terminals does not exceed 10 A.

3. CONFIGURATION

3.1 Expander configuration

The configuration of XM-6DR is performed by means of jumpers according to table 4.

| Table 4. Configuration jumpers | |
|---------------------------------------|------------------------|
| Jumper | Function |
| JP1 | Address jumper „1” |
| JP2 | Address jumper „2” |
| JP3 | Address jumper „4” |
| JP4 | Address jumper „8” |
| JP5 | No function |
| JP6 | No function |
| JP7 | No function |
| FDM | Firmware download mode |

Note: Every time a jumper is put or removed it is necessary to restart the module in order to make new settings effective. The restart can be done by means of RESET button or power supply switch off and on.

The address of XM-6DR can be programmed by means of jumpers based on their values e.g. jumpers on pins JP1 and JP3 signify the address ID=5 ($1+4 = 5$) while jumpers on all JP1...JP4 pins signify ID=15 ($1+2+4+8 = 15$).

3.3. Firmware update

Roger devices are always delivered with the latest version of firmware but it can be updated by customer. The latest version of firmware, which might offer new functionalities and/or eliminate errors is available at www.roger.pl. New firmware can be uploaded to XM-6DR by means of computer z with RogerISP software (ver. 5 or newer) and it requires communication interface device e.g. RUD-1 connected to USB port of the computer.

Firmware update procedure

- Place jumper on FDM pins
- Connect XM-6DR to RUD-1 in accordance with table 5
- Reset the device (use RESET button or switch power supply off/on)
- Start RogerISP software and select communication port
- In Firmware window select firmware *.hex file
- Click Program button
- After firmware upload, remove jumper from FDM pins and reset the device (use RESET button or switch power supply off/on)
- Disconnect XM-6DR from RUD-1

| Table 5. Connection of XM-6DR and RUD-1 | |
|--|----------------|
| XM-6DR terminal | RUD-1 terminal |
| +12V | 1 |

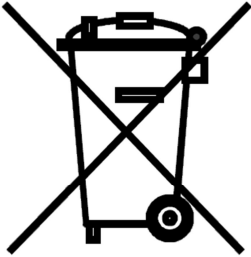
| | |
|-----|---|
| GND | 2 |
| IO1 | 5 |
| IO2 | 6 |

4. ORDERING INFORMATION

| Product | Description |
|---------|--|
| XM-6DR | Input/Output addressable expander module with enclosure for installation on DIN 35mm rail. |

5. PRODUCT HISTORY

| Version | Firmware | Date | Description |
|---------|----------|---------|---|
| XM-6DR | 1.0 | 08/2012 | The first commercial version of the product |

| | |
|--|---|
|  | <p>This symbol placed on a product or packaging indicates that the product should not be disposed of with other wastes as this may have a negative impact on the environment and health. The user is obliged to deliver equipment to the designated collection points of electric and electronic waste. For detailed information on recycling, contact your local authorities, waste disposal company or point of purchase. Separate collection and recycling of this type of waste contributes to the protection of the natural resources and is safe to health and the environment. Weight of the equipment is specified in the document.</p> |
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